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ABSTRACT

This paper presents a review of the literature on impression formation in face-to-face (FtF) and computer-mediated communication (CMC) and provides impression management recommendations for CMC users in a variety of environments. The first section provides an introduction to impression formation. Factors affecting impression formation in FtF and CMC environments are presented in the second section. For FtF environments, these factors include nonverbal cues (e.g., visual, paralinguistic, and psychological) and verbal variables (e.g., language norms, standard discourse schemas, pragmatic/syntactic codes, language intensity/immediacy/diversity, powerful/powerless language styles, gender-related language, verbal influence strategies, and ironic remarks). Models of CMC environments are described, and verbal and nonverbal cues (e.g., chronemics/temporal aspects, primacy/recency effects, frequency/duration of messaging, and paralinguistic cues) are addressed. The third section presents verbal and nonverbal strategies for developing positive impressions in CMC. Verbal strategies include: following language norms; using standard discourse schemas selectively; using pragmatic and syntactic codes selectively; using intense language; using immediate language; using diverse language; using powerful language style; using appropriate gender-related language; selecting appropriate verbal influence language; and using appropriate ironic remarks. Nonverbal strategies include: using paralinguistic cues appropriately; taking into account chronemics; maintaining a high frequency of messaging; maintaining a long duration of messaging; manipulating primacy effect; manipulating recency effect; and ensuring no typing errors. (Contains 106 references.) (MES)

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How to Achieve Better Impressions in Computer-Mediated Communication?

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Abstract

Within the domain of social psychology, impression formation is one of the major topics. Since Asch's classical studies, there has been considerable additional research on impression formation in face-to-face (FtF) environments. The cognitive paradigm has contributed much to this body of research in this area. However, there is not much research on impression development in computer-mediated communication (CMC). This paper involves four major sections: (a) an introduction to impression formation, (b) factors affecting impression formation in FtF and CMC, (c) strategies of self presentation, including both verbal and nonverbal strategies for CMC users, to develop positive impressions in a variety of CMC environments, and (d) conclusion.

How to Achieve Better Impression in Computer-Mediated Communication?

Impression formation, one of the early and major topics within cognitive social psychology, is a very important aspect of interpersonal communication. The idea of impression formation is usually associated with the work of Asch (1946). Since Asch's original work, there has been additional research in the area of impression formation in face-to-face (FtF) environments. Research has consistently indicated that both nonverbal cues and verbal cues jointly affect a person's general judgments of the other person in interpersonal communication.

With the development of computer and communication technology in recent years, computer-mediated communication (CMC) is a new mode of communication that has been developing. Since CMC is an "altered state of communication" (Vallee, Johansen, & Spangler, 1975, p. 12), this type of communication may be different from communication in other settings. CMC may "change the psychology and sociology of the communication process itself" (Turoff, 1978, p. 10), including many aspects of interpersonal relationships. There has been a growing body of research on the nature of CMC in recent years. However, there is not much empirical research on impression formation in CMC. Even so, the findings in this area in FtF may be applicable to CMC.

According to Burgoon and Hale (1984) and McCann and Higgins (1990), there are two different approaches to studying interpersonal communication. One is to take the receiver orientation, including such dimensions as character, competence, extroversion, composure, and sociability, attraction, and similarity. The other is to take the communicator orientation, including such dimensions as self-presentation, impression

management, and ingratiation. This study is based on the communicator orientation. Specifically, this study is designed (a) to make a brief introduction of impression formation, (b) to review the relevant impression formation literature in FtF and CMC environments, and (c) to provide impression management recommendations for daily CMC users in a variety of environments. These environments may include teaching distance education courses, participating in discussion lists, providing leadership in organizations, and even personal electronic communication. In other words, a variety of individuals, including distance education instructors in institutions, CMC list discussants, managers in organizations, and personal CMC users, can manipulate certain variables to achieve desired impressions and relational development in future CMC environments.

Introduction to Impression Formation

In 1946, Asch conducted several experiments to examine impression formation in personality. These experiments are considered classical studies of impression formation. Asch emphasized forming a unified impression of the entire person through his/her trait(s) in interpersonal communication. Asch (1952) wrote:

> Out of the diverse aspects of an individual we form a view of him as a particular kind of person, with relatively enduring properties. It is with persons who have identity and individuality that we establish significant relations....
>
> Ordinarily our view of a person is highly unified. Experience confronts us with a host of actions in others, following each other in relatively unordered succession. In contrast to this unceasing movement and change in our observations we emerge with a product of considerable order and stability. Although he possesses many tendencies, capacities and interests, we form a view

> of one person, a view that embraces his entire being or as much of it as is accessible to us .... How do we organize the various data of observation into a single, relatively unified impression? (p. 206-207)

Since Asch (1946), there has been considerable additional research in this field. In 1961, Goffman proposed another quite different perspective from Asch (1946). According to Goffman, impression formation refers to how the communicator presents himself/herself in front of others. Goffman noted that the communicator interacting with others

> may wish them to think highly of him, or to think he thinks highly of them, or to perceive how in fact he feels toward them .... Regardless of the particular objective which the individual has in mind and of his motive for having this objective, it will be in his interests to control the conduct of others ... this control is achieved largely by influencing the definition of the situation which the others come to formulate, and he can influence this definition by expressing himself in such a way as to give them the kind of impression that will lead them to act voluntarily in accordance with his own plan. Thus, when an individual appears in the presence of others, there will usually be reason for him to mobilize his activity so that it will convey an impression to others which is in his interests to convey. (p. 3-4)

Up to this point, most early impression formation research followed the assimilatory tradition. This tradition investigated the determinants of differential accuracy in perception. This kind of research focused on judgments of personality traits and

involved a research paradigm based upon simple matching of perceivers and target responses to personality inventories and questionnaires (O'Keefe & Delia, 1982).

However, since late 70's and early 80's, the cognitive paradigm has contributed to the study of impression formation. In 1980, Carlston proposed the Dual Memory Model to explain impression formation. According to this model, impression formation involves two basic processes. First, the person making judgments (called the judge) recalls specific events or behavior related to a target person. Then the judge determines the applications of these recalled events for the judgment to be made. Both trait inferences and recalled events contribute to impression judgments.

In 1982, O'Keefe and Delia proposed a constructivist theory of impression formation—the Communicative Intentions Model. According to O'Keefe and Delia (1982), this constructivist model deals with how the interpersonal construct system organizes "personal-centered" message production. Therefore, it is also called the Person-Centered Model. This model is related to Burgoon and Hale's (1984) communicator orientation. According to this model, the greater the development of one's personal construct system, the more differentiated and abstract one's impressions of others should be.

In all, according to O'Keefe and Delia (1982) and Hampson (1990), social cognition has contributed much to the study of impression formation in recent decades. This is the major shift in research focus from the problem of accuracy to the problem of how inferences are formulated and constructed in forming overall evaluations and impressions of others. This major shift is represented in two major aspects. One aspect is the representation of behaviors and traits and the ways such information is retrieved

(Wyer & Srull, 1980, 1986; Hampson, 1990). The other aspect is the extension of cognitive categorization theory to the trait domain (Hampson, 1990). According to this perspective, a trait is an abstract concept that provides an economical and efficient way of describing an aspect of a person's behavior.

Many additional studies offer support for the above social cognitive perspective. According to Schmeck and Geisler-Brenstein (1989), impression formation is related to one of the information processing dimensions--global processing style. For instance, when people intend to verbally describe those previously formed impressions about the target person, they tend to reconstruct those impressions in terms of global trait categories, as well as to focus on evidence of consistent, unqualified dispositions in the target's behavior (Hoffman, Mischel, & Baer, 1984). Therefore, it can be inferred that impression formation refers to the process in which people employ all available information and make general judgments of other's personality in group interactions.

Factors Affecting Impression Formation

Many studies have indicated that a variety of factors influence a person's impression formation. Impression formation is not only related to the characteristics of the target person, but also related to the characteristics of the communicator's underlying perceptual-cognitive process (Gollin, 1954). In most situations, information about a target person may include physical characteristics, traits, general behaviors, social roles, and groups to which the person is affiliated, as well as specific behaviors in specific situations (Wyer & Srull, 1980). The factors affecting impression formation in both FtF and CMC environments will be reviewed below, respectively:

FtF Environments

Research has consistently indicated that both nonverbal and verbal factors influence a person's interpersonal communication in face-to-face (FtF) environments. A person usually integrates a variety of nonverbal and verbal cues to produce a single, relatively unified impression formation (Kraut, 1978; Krauss, 1981) although there is an important difference between impression in the laboratory and in the real world (Krauss, 1981). The effects of both nonverbal and verbal cues on impression formation in FtF are described as follows:

Nonverbal cues. Nonverbal cues have been studied extensively because they can encode messages, especially those messages related to a speaker's internal state (Krauss & Fussell, 1996). Short, Williams, and Christie (1976) have focused on the nonverbal cues in interpersonal communication. Short et al. proposed the Social Presence Theory to explain the medium effects. According to the Social Presence Theory, media vary in their "capacity to transmit information about facial expression, direction of looking, posture, dress and nonverbal, vocal cues" (p. 65). FtF is the richest communication channel, compared with other media. Furthermore, they believed that visual nonverbal cues were critical to induce affective information and effective communication.

According to Culnan and Markus (1987) and Patterson (1990), nonverbal cues not only regulate social interaction, but also supply valuable information about communicators. This kind of information is very helpful in forming impressions, in assessing the ways communicators understand and reply to messages, in determining the truthfulness of the communicators' communication, and so on. In addition, people's interpretations of nonverbal cues are very much context-dependent (Berman, 1985;

Krauss, 1981; Williams, Munick, Saiz, & FormyDuval, 1995). Therefore, nonverbal cues can be managed for particular interpersonal goals, such as engaging the other people and improving the impact of those contextually relevant cues (Edinger & Patterson, 1983; Patterson, 1982, 1990, 1994). The nonverbal cues discussed below primarily focus on three categories: visible, paralinguistic, and psychological.

The first category of nonverbal cues is visible. Mehrabian (1971) proposed three basic nonverbal communication metaphors relevant to visual cues: the immediacy metaphor, the power metaphor, and the responsive metaphor. The immediacy metaphor refers to the principle that people approach what they like and avoid what they don't like. The typical signals of this metaphor include eye contact, touch, distance, body posture, and the like. This metaphor is relevant to intimacy. The power metaphor refers to status, dominance, and fearfulness. The typical signals of this metaphor include relaxed posture, limb asymmetry, and so on. This metaphor is relevant to dominance-submission. The responsive metaphor refers to an organism's emotional reactivity to its environment. The typical signals of this metaphor include positive or negative behaviors, as well as activities from highly manic to completely passive. This metaphor is relevant to emotional arousal.

In all, the various effects of visible nonverbal cues on impression formation have been studied in a variety of situations. These situations include facial expression (e. g., Ohira & Kurono, 1993; Ottatti, Terkildsen, & Hubbard, 1997), eye contact (e. g., Winkel & Vrij, 1990), touch (e. g., Burgoon & Walther, 1990), dress style (e. g., Vrij, 1997), body posture (e. g., Burgoon & Walther, 1990), physical appearance (e. g., Butler, Pryor,

& Grieder, 1998; Vrij, 1993, 1997), as well as ethnicity (e. g., Chia & Jih, 1994: Vrij & Winkel, 1994).

The second category of nonverbal cues is paralinguistic. According to Street (1990), paralanguage is one of the two basic categories of nonverbal speech in social interaction. Paralanguage refers to continuously coded behaviors such as fundamental frequency, vocal intensity, speech duration, speech rate, pause, response latency, and the like. In addition, paralanguage is related to the speaker's emotion, physiology, and arousal; it can be managed to fulfill the speaker's communicative intent.

Extensive research has indicated that people share information about feelings and thoughts not only through facial and gestural cues, but also through paralinguistic cues (Keeley & Hart, 1994; Knapp & Hall, 1992). Sometimes these messages have inherent meaning, i. e., a genuine smile may modify or amplify the verbal messages or behavior. These messages are especially important in the development of intimacy (Reis & Patrick, 1996). The major paralinguistic cues that have been identified and studied are latency of verbal response (LVR) and duration of verbal response (DVR). Latency of verbal response and duration of verbal response have also been shown to affect communicator's impression formation in small group interaction. According to Willard and Strodtbeck (1972), LVR refers to the length of pause before responding and is calculated on the basis of the average time taken to begin speaking when asked to complete sentence stubs. LVR is a very powerful predictor of discussion in small groups. Specifically, persons with a short LVR tend to have high participation and a positive impression; they are perceived as both competent and confident by their group members.

In order to replicate the study by Willard and Strodtbeck (1972), Koomen and Sagel (1977) added talkativeness or duration of verbal response, as a second variable. According to Koomen and Sagel, a positive relationship exists between DVR and participation in small groups. Specifically, a short DVR indicated low participation. Persons with a short DVR are perceived by their group members as not competent and not confident, as well as having a negative impression, and vise versa. In addition, their results further indicated that joint use of LVR and DVR predictors would guarantee greater precision in small group participation.

The third category of nonverbal cues is psychological. Psychological cues in this context refer to a communicator's individualistic traits such as attention, attribution, mood, primacy effect, and recency effect. According to Belmore (1987), Hilton, Klein, and von Hippel (1991), and McArthur (1981), attention plays a great role in a person's impression formation. Generally, the positive attention results in positive impression formation, while the negative one causes negative impression formation.

According to Sillars (1982), attribution also plays an important role in a person's impression formation. Since people are both spontaneous and reflective, rational and irrational, logical and illogical, there are biases in human communication, such as inferential biases, motivational biases, perceived control biases, attributional biases, and the like. In addition, according to Asuncion and Lam (1995) and Edwards and Weary (1993), mood states also play an important role in impression formation. Generally, non-depressed participants were more likely to depend on category membership information than chronically depressed participants who appeared to rely more on analyzing individuating information available to them.

According to Wyer and Srull (1980), there are two major common cognitive processes related to impression formation. The first one is primacy effect. One of Asch's (1946) major results was impression formation primacy effect. This effect indicates that the initially received information tends to be better recalled and used than subsequently received information. The other one is recency effect (Richter & Kruglanski, 1998; Wyer & Srull, 1980). This effect indicates that the more recently the information has been received and processed, the more likely it is to be recalled and used again.

Verbal Cues. Although the nature of impression formation has been studied extensively since Asch's (1946) classic study, the influences of verbal cues on impression formation have not received much attention until recently (Bradac & Street, 1989/90; Giles & Edwards, 1982). In recent years, many researchers emphasized the importance of language in an individual's interpersonal communication since verbal behavior can serve functions similar to nonverbal behavior (Spitzberg & Cupach, 1984).

According to Bradac (1990), language attitudes do have an impact on impression formation and serve as an important trigger of beliefs and evaluations in initial interactions. Bradac remarked:

> … various linguistic features trigger in message recipients [sic] beliefs ('her way of talking leads me to think she is a professor') and evaluations ('She is intelligent') regarding message senders, and that these beliefs and evaluations are most likely to affect recipients' behaviours toward senders in contexts of low mutual familiarity. (p. 387)

Therefore, Bradac (1990) concluded, all of the levels of language, including phonology, syntax, semantics, pragmatics, and the like, influence recipients' beliefs about and evaluations of the message sender.

According to Bradac and Street (1989/90), most research on language and the impression of power is based on the assumption that, within a given culture, message receivers constantly associate certain characteristics of a communicator's language with certain inferences concerning his/her personal traits. Several major language variables will be reviewed below. These variables include language norms, standard patterns, pragmatic and syntactic codes, language intensity, verbal immediacy, lexical diversity, powerful and powerless styles, gender-related language, verbal influence strategies, and ironic remarks.

The first language variable is language norms. Language is a highly rule-controlled system. People develop language norms and expectations regarding appropriate usage in given situations. In many cases, the language that people use confirms these norms and expectations. Frequent confirmation is helpful to explain the maintenance of the norms and expectations. Many sociological and cultural factors shape people's patterns of common language and determine normative and non-normative language usage (Burgoon & Miller, 1985). For instance, norm deviations or violations reduce the subject's perception of the norm violator's attractiveness and affect their ability to confidently predict and explain behavior. Specifically, in the context of an initial conversation between strangers, violating norms such as information sequencing, reciprocity, and appropriate compliment giving produces negative consequences for the norm violators (Berger, Gardner, Parks, Schulman, & Miller, 1976).

The second language variable is standard discourse schemas. In order to facilitate understanding the nature of language, Winograd (1977) proposed a framework for understanding discourse. According to Winograd, there are three standard classes of discourse schemas in the language: interpersonal schemas, rhetorical schemas, and narrative schemas. Interpersonal schemas refer to conventions for establishing interpersonal interactions between the communicators. Usually, interpretation can be done in light of the subtle interactions between the form and the situations. In addition, interpretation also consists of the use of general knowledge regarding the nature of cooperative conversation. Rhetorical schemas refer to conventions for laying out a reasoning sequence which the writer wants the reader to follow. Some of the frequently used rhetorical devices include "because," "therefore," "so," and so on. Narrative schemas refer to conventions for connecting a sequence of language into a coherent text. Within any culture and language, there is a set of standard schemas for connecting narratives of events, as well as for establishing the communicator's point of view.

The third language variable is pragmatic and syntactic codes. Ellis (1992) distinguished two basic codes in communication: pragmatic and syntactic. According to Ellis, the pragmatic code is verbally and theoretically associated with the oral communication style in which context and shared background are essential. The syntactic code is associated with the literate style which is less context driven, more explicit, and more differentiated. These two codes differ in a variety of ways, such as meaning, structure, comprehension, involvement, and the like. As for involvement, the pragmatic code is more associated with high engagement, while the syntactic code is related to detachment or low engagement.

The fourth language variable is language intensity, immediacy, and diversity. Although language features vary from person to person and group to group, according to Bradac, Bowers, and Courtright (1979, 1980), language in communication has three important common variables based on empirical research: language intensity, verbal immediacy, and lexical diversity. Language intensity refers to "the quality of language which indicates the degree to which the speaker's attitude toward a concept deviates from neutrality" (Bowers, 1963, p. 345). This concept is the most extensively studied among these three variables. Research has indicated that language intensity is not only directly related to a receiver's attributions of internality to communicators, but also very much related to the features of the particular communication context. In addition, obscenity is inversely related to post-communication evaluations of the communicator's competence. Verbal immediacy refers to the degree to which a communicator relates himself/herself to the topics of the message. Research has indicated that verbal immediacy is directly related to a receiver's judgments of a communicator's positive affect and competence, as well as character. Lexical diversity, also called vocabulary richness or verbal redundancy, refers to the exhibited range of a communicator's vocabulary. Research has indicated that lexical diversity is directly related to a receiver's judgments of a communicator's competence, social economic status (SES), as well as message effectiveness. Therefore, according to Burgoon and Miller (1985), "By evaluating our language choice, others make attributions about social and professional status, background and education and even the intent of communication" (p. 199).

The fifth language variable is powerful and powerless language styles. Powerful and powerless language styles were first introduced by Erickson, Lind, Johnson, and

O'Barr (1978) in an inspection of court transcripts. According to the findings of most research in this area (e. g., Erickson et al.1978; Gibbons, Busch, & Bradac, 1991; Haleta, 1996; Hosman, 1989), the powerless style is featured by the frequent use of such verbal characteristics as hedges, intensifiers, hesitation forms, polite forms, questioning intonations, and so on, while the powerful style is characterized by less frequent use of these features. This tendency is independent of participants' gender. The powerful and powerless language styles influence participants' perceptions of the communicator's competence, credibility, and attractiveness. In addition, according to Bradac and Mulac (1984), powerless language style is unlikely to fulfill the communicator's intents, while powerful language style is likely to fulfill the communicator's intents. These features were stable whether the communicator's intention was to be authoritative or sociable. However, research in this area has consistently indicated that communicators using powerless language style are not necessarily low in social status, social power, or low competence, but convey that impression on account of the use of powerless language style.

The sixth language variable is gender-related language. Although there is not much research on how gender-role appropriate language affects receiver's impressions about the communicator (Frueh & Becker, 1992), some research has consistently found stereotypical impressions. Lakoff (1975) proposed that female-like language is a powerless style, which would weaken the speaker's competence. Other research has consistently found that males tend to be dominant, concise, loud, blunt, and so on while females tend to be gentle, verbose, emotional, polite, and so on (Kramerae, 1974, 1977). Meantime, male language is perceived higher in dynamism ratings while female language

is perceived higher in aesthetic quality ratings (Mulac & Lundell, 1980, 1986). In addition, according to Bradac (1990), gender-related language may have a within-group factor. Therefore, it may be possible for the same group of persons to speak male language in some cases, while speaking female language in other cases.

The seventh language variable is verbal influence strategies. Verbal influence strategies have been examined in some situations. According to Newton and Burgoon (1990), verbal influence strategies used in interpersonal disagreements not only included complicated combinations of verbal behavior, but also varied in both effectiveness in achieving instrumental goals and satisfaction in the communicative environments. In addition, the predominant interaction pattern was reciprocal instead of compensatory.

Burgoon and Miller (1985) proposed three different paradigms in persuasive communication: passive message reception paradigm, active participation paradigm, and resistance to persuasion paradigm. In the passive message reception paradigm, the persuader acts by preparing and delivering the message while the persuadee is acted upon. In the active participation paradigm, both persuader and persuadee are induced to present belief-discrepant messages in public. This process results in a change in the roles by both persuader and persuadee. The above two paradigms are primarily associated with attitude change. In the resistance to persuasion paradigm, the communicator's initial message seeks to decrease the vulnerability of receivers to later persuasive appeals.

The eighth language variable is ironic remarks. A variety of research has been conducted on the social functions of irony. Results have consistently indicated that ironic criticisms convey information distinct from that conveyed by literal criticism (Dews, Kaplan, & Winner, 1995; Kreuz, Long, & Church, 1991; Longman & Graesser, 1988).

Dews et al. found that ironic remarks functioned quite differently from literal paraphrase. Specifically, people use irony over literal language because of the following advantages: (a) to be funny in communication, (b) to reduce the edge of an insult, (c) to show themselves in control of their emotions when encountering offensive behavior or poor performance, and (d) to avoid hurting their relationships with the receiver.

CMC Environments

Models of CMC. CMC offers many modes of communication, both synchronous and asynchronous. The former includes computer conferencing and electronic databases, while the latter is made up of e-mail and bulletin boards (Rice, 1990). In recent decades, CMC has advanced greatly and has been extensively employed in a variety of settings, including educational conferencing, cooperative research, organization, political forums, social support, and interpersonal communication. As for the nature of CMC, there are two predominate models of CMC: task-oriented and social-emotion-oriented (Liu & Ginther, 1999). This distinction is similar to Bales' (1950, 1955) task-social dichotomy of small group interactions. Most initial research has described CMC as task-oriented and depersonalized within the task-oriented model. According to this model, there are three variations: the Social Presence Theory (Short et al., 1976), the Media/Information Richness Theory (Daft & Lengel, 1984) , and the Social Context Cues Theory (Kiesler, Siegel, & McGuire, 1984). Since these three variations share similarities, they are all categorized within the "cues-filtered-out" perspective (Culnan & Markus, 1987). According to the "cues-filtered-out" perspective, the CMC environment is restricted in terms of nonverbal cues. Therefore, CMC tends to be tasked-oriented, depersonalized, and not capable of developing interpersonal relationships among users. According to Liu

and Ginther (1999), the findings of most initial research and some recent research in CMC environments tend to be consistent with the model of the task-oriented communication. Major findings involve a variety of task-related topics including: (a) equal participation, (b) uninhibited behavior, (c) increased quality of decision making, (d) increased time to reach a decision, and (e) depersonalization.

However, as CMC research advances, new theories in this area are emerging. Walther (1992b) proposed a theory called the Social Information Processing Model to explain how interpersonal relationships can be established in CMC environments. This model is primarily based on principles in interpersonal relationship development and social cognition in social psychology. This model discusses how communicators process relational cues and social identity using various media and can explain users' social cognition and impression formation processes in CMC. Specifically, this model can explain how CMC users process socially revelatory information in CMC and FtF environments, as well as the effects of such information on interpersonal communication. This model maintains that CMC is social-emotion-oriented.

According to the Social Information Processing Model, communicators who use any medium experience similar needs for affinity and uncertainty reduction. To meet these needs, CMC communicators will adapt their textual or verbal behaviors to present and solicit their relational behavior. In addition, because of limited cues, CMC cannot convey all the task-related and social-emotion-related information within as little time as multichannel FtF environments. However, communicators can adapt nonverbal messages into the textual behavior. It can be inferred that the exchange of social information in CMC environments may be slower than FtF, but it will be possibly as potent over time.

Therefore, the key difference in relational development between FtF and CMC is a matter of rate, rather than capability (Walther, 1992).

More recent field research has indicated that the social-emotion-orientation is a major nature of CMC. The major findings of most recent research on the social-emotion-oriented communication in CMC environments tends to be consistent with the social-emotion-oriented model. According to Liu and Ginther (1999), recent major findings involve a variety of social-emotion-related topics including: (a) social and relational development, (b) individuation, (c) humor, and (d) impression development. CMC is not only task-oriented, but also is social-emotion-oriented, through the adaptation of the communicator's verbal and textual or nonverbal behaviors.

Verbal cues. As described previously, according to the "cues-filtered-out" theory, CMC is short of visible nonverbal cues. Therefore, many researchers have primarily paid attention to the importance of verbal cues in CMC environments in recent years (Adkins & Brashers, 1995; Baron, 1984; Dutton, 1996; Ferrara, Brunner, & Whittemore, 1991; MacKinnon, 1995; Murray, 1988). Some researchers have pointed out that language in CMC environments has characteristics of both oral and written language. According to Ferrara et al. (1991), interactive written discourse (IWD) is a hybrid which exhibits characteristics of both oral and written language. In addition, norms for IWD are gradually emerging. Moreover, regarding CMC language, Murray (1988) proposed the following rethinking on literacy and orality.

> Literacy and orality are not dichotomous, nor do they represent ends of a continuum along which various types of literate and oral modes can be placed as a result of their specific characteristics. E-message and E-mail, although in written

> form, often share characteristics claimed to identify oral language, such as fragmentation and personal involvement; however, E-mail can share characteristics of written language .... Moreover, people move among modes and media even within the same interaction. (p. 370)

Therefore, according to Murray's (1988) above description, the use of characteristics such as personal involvement, integration, and the like, is primarily determined by the specific context rather than by whether the communication is written or oral.

However, there are not many empirical studies about the effects of verbal cues on impression formation in CMC. Adkins and Brashers (1995) studied the influences of powerful and powerless language styles on impression formation in decision-making CMC environment. In their experiment, powerless language style is characterized by the participant's consistent use of hedges, hesitations, intensifiers, and tag questions. The results have indicated that a communicator using a powerful language style in CMC environments is perceived as more attractive, credible, and persuasive than the communicator using a powerless language style. These perceptions may have effects on subsequent behaviors in CMC environments. In addition, contrasting language styles made perceptions become more extreme than if communicators shared a similar language style. Impression formation could be achieved relatively quickly, within a 20-minute group interaction, among communicators with zero-history in CMC. Therefore, Adkins and Brashers (1995) remarked: "Language style is an important characteristic of computer-mediated communication because it is a cue used in generating impressions. These impressions are used by message receivers to decide future communication strategies and means of relational development" (p. 297).

Nonverbal cues. More recent research has indicated that CMC not only has verbal cues, but also has nonverbal cues available that can be manipulated to develop interpersonal relationships among CMC users (e. g., Liu & Ginther, 1999; Walther, 1992). According to Liu and Ginther (1999), there are several categories of nonverbal cues in CMC, including individual differences, chronemics--time of sending and receiving a message, frequency and duration of messaging, primacy and recency effects, gender composition, group size, paralinguistic cues, and the like.

The first category of nonverbal cues is chronemics or temporal aspects of CMC. Hesse, Werner, and Altman (1988) proposed a transactional framework to study temporal aspects in CMC interaction. According to Hesse et al., temporal aspects of CMC involves four major aspects: temporal scale, sequencing, pace, and salience. In addition, according to Walther and Tidwell (1995), chronemics is a very important nonverbal cue and can be transferred via CMC. Variations in chronemic cues can affect communicator's judgments about their intimacy/liking or dominance/submissiveness in CMC relational communication. Specifically, (a) a nighttime emotion-oriented message conveys more intimacy than a daytime emotion-oriented one, while a nighttime task-oriented request connotes less intimacy than a daytime task-oriented one; (b) an emotion-oriented message sent at night indicates more equality or less dominance than an emotion-oriented one sent in the day, while a task-oriented message sent at night is more dominant than a task-oriented message sent in the day; (c) a slow reply to an emotion-oriented message conveys greater intimacy/affection than a fast one, while a slow reply to a task-oriented message connotes less intimacy/affection than a fast one, and (d) a fast reply indicates less dominance while a slow reply conveys greater dominance.

The second category of nonverbal cues includes primacy and recency effects. According to Rintel and Pittam (1997), in order to achieve a positive impression on the desired receivers, there are critical factors for initial impression formation in the opening stage in an Internet Relay Chat (IRC) environment. These include the choice of names such as nicknames, the use of orthographic exaggeration, extension, expansion, and paralinguistic marks such as smileys. Therefore, according to Rintel and Pittam, the opening and closing phases of IRC interactions are crucial for the initiation, development, and maintenance of interpersonal relationships. Moreover, interaction management in synchronous CMC interactions is similar to that in casual group FtF interactions in terms of the general functions of the strategies used although the content, structure, and ordering of the strategies are subject to modification. Therefore, it can be inferred that interaction management in FtF may be applicable to synchronous CMC interaction. Specifically, a communicator may achieve a positive primacy impression in the opening stage and achieve a positive recency impression in the closing stage.

The third category of nonverbal cues includes frequency and duration of messaging, as well as latency of response. According to Rice (1984a, 1984b) and Rice and Love (1987), frequency and duration of messaging are two major aspects related to the amount of CMC information communication. Frequency is similar to "latency of verbal response" (Willard & Strodtbeck, 1972) and refers to how quickly a communicator responds to begin a conversational turn. Duration is similar to the psychological trait of "duration of verbal response" (Koomen & Sagel, 1977) and refers to how long one communicates between conversational turns. These psychological traits are quite stable and reliable and highly correlated with the degree of one's participation in group

communication (Hiltz & Turoff, 1978). Some experimental research in this area supported the above perspective, that is, frequency and duration of messaging had main effects on impression scores in CMC (Liu, 1999). In all, according to Rice (1984a, 1984b) and Rice and Love (1987), sociability implies that social-emotion-oriented persons should exhibit shorter latency of verbal response and greater duration of verbal response. In addition, such persons are more likely to achieve leadership in group interaction.

The final category of nonverbal cues includes paralinguistic cues, such as pictographs or typographic marks and emoticons in CMC. Many previous studies have indicated that paralinguistic cues in CMC can help written communication to be forceful and explicit (e. g., Krout, Lewis, & Swezey, 1982; Williams, 1977). According to Lea and Spears (1992), paralanguage is not only available in FtF interaction, but also available in written communication, which takes the form of typographical marks and other characteristics of the text. Paralanguage does convey socially shared meanings although it has no lexical meaning. Therefore, reading paralinguistic cues not only facilitate the understanding of the transmitted message, but also help define the message style from which receivers may infer certain impressions about the communicator's personality traits. For instance, the appearance of typing errors in a message may imply that the sender is in a hurry when composing the message. However, the repetitive appearance of typing errors in a series of messages may imply that the sender is careless and incompetent. Similarly, repetitive use of typographical marks may imply that the sender is a lively and spontaneous person. Therefore, many researchers, such as Asteroff (1987), Reid (1995), and Thompsen and Foulger (1996), have proposed using pictographs

or typographic marks and emoticons in CMC interaction because these marks can convey social emotions and reduce perceptions of flaming. Specifically, in some cases, emoticons may convey facetiousness, while in other cases, they may convey sarcasm. In addition, Lea and Spears (1992) found that spontaneously generated paralinguistic marks were related to impression formation for both novice and experienced CMC communicators and that whether their interpretation was positive or lower completely depended on the pre-established groups or individualistic context of the interaction.

Strategies of Developing Positive Impressions in CMC

According to Burgoon and Hale (1984), interpersonal communication has two generic functions: developing evaluations of others and facilitating positive evaluations of self. The latter function is related to strategies of self-presentation and is the major interest of this paper. Just as Goffman (1961) remarked: "The performance of an individual accentuates certain matters and conceals others" (p. 67). Therefore, the presentation of self can be achieved in any situation in order to accomplish a particular impression. Generally, the nature of these self-presentations are socially positive. According to Bell and Daly (1984), "People expend considerable social energy attempting to get others to like and to appreciate them" (p. 91). As many researchers have pointed out, CMC communicators are not de-individuated; they have a significantly higher private self-awareness (Matheson & Zanna,1988, 1990); they tend to be more critical and more willing to assess the information they are receiving than FtF counterparts (Smilowitz, Compton, & Flint, 1988). Therefore, according to Walther (1996), the presentation of self may be achieved better in CMC environments since CMC

has two critical features: reduced communication cues and potentially asynchronous communication.

In all, CMC communicators form impressions of a stranger from all available cues, including verbal and nonverbal cues. These impressions, in turn, will influence their subsequent behaviors significantly in CMC environments (Lea & Spears, 1992). Based on the literature review in FtF and CMC, this section recommends how a CMC user can present himself to achieve positive impressions. This includes two types of strategies in CMC: verbal and nonverbal.

1. Verbal strategies

(1) Following language norms. CMC communicators should follow the emerging CMC language norms to express their attitudes and ideas. These include such norms as information sequencing, reciprocity, and appropriate compliment giving. Otherwise, any norm violations will reduce the receiver's perceptions of the norm violator's attractiveness and affect their competence. This may have important implications for interpersonal, organizational, and educational communications.

(2) Using standard discourse schemas selectively. CMC communicators should select one or a combination of any of the three standard classes of discourse schemas in communication: interpersonal schemas, rhetorical schemas, and narrative schemas, in accordance with the nature of the topic being communicated. For instance, the interpersonal schemas will be highly recommended for interpersonal communication.

(3) Using pragmatic and syntactic codes selectively. Language in CMC environment has characteristics of both oral and written language. Therefore, CMC communicators should select one or a combination of the two basic codes in

communication, pragmatic code and syntactic code, in accordance with the nature of the topic being communicated. For instance, syntactic code is highly recommended for task-oriented topics, while pragmatic code for emotion-oriented topics.

(4) Using intense language. CMC communicators should use appropriately intense language, such as strongly worded messages, to express their attitudes toward the topic being communicated. Otherwise, it will hinder their communicative effectiveness in group interaction. This may have important implications for the role of leadership, especially for organizational and educational communications.

(5) Using immediate language. CMC communicators should use strongly immediate language to express their attitudes toward the topic being communicated. The more immediate the language, the more positive the receiver's judgments of communicator's competence, affect, and character. For instance, "We'll certainly enjoy the party" is more immediate than "You and I certainly will enjoy the party." This may have important implications for the role of leadership, especially for organizational and educational communications.

(6) Using diverse language. CMC communicators should use a wide range of vocabulary to express their attitudes toward the topic being communicated. The wider the range of vocabulary, the more positive the receiver's judgments of the communicator's competence, SES, and message effectiveness. This may have important implications for the role of leadership, especially for organizational and educational communications.

(7) Using powerful language style. CMC communicators should use powerful language style to express their attitudes toward the topics being communicated. Specifically, their language style should not include such features as consistent use of

hedges, hesitations, intensifiers, tag questions, and the like. This may have important implications for organizational and educational communications. For instance, when managers want to communicate something important, they should use a powerful language style to achieve a positive impression from their employees and influence their employees' subsequent behaviors.

(8) Using appropriate gender-related language. CMC communicators should use appropriately gender-related language for different topics being communicated. For task-oriented topics, male-like language should be highly recommended, while female-like language for emotion-oriented topics. In addition, CMC communicators may use different gender-related language for different genders. For instance, male-like language is highly recommended for male communicators.

(9) Selecting appropriate verbal influence language. CMC communicators should select appropriate verbal influence language when being involved in disagreements and/or persuasive tasks. In most cases, the active participation paradigm and rational persuasion language are highly recommended. Influence language should focus on reciprocity between communicators rather than compensatory. In addition, CMC communicators should adapt their message content appropriately to fit the receiver's needs by taking the latter's characteristics and perspectives.

(10) Using appropriate ironic remarks. CMC communicators should use appropriate ironic remarks rather than literal paraphrase or criticism in some special situations. In this way, they can make fun, reduce the degree of insults, show control of their emotions when being offended, or avoid hurting their relationships. This may have special implications for both interpersonal and organizational communications, as well as

for educational communications. For instance, managers should use ironic remarks rather then literal criticism to reduce an employee's emotional frustrations when the latter involves poor performance.

2. Nonverbal strategies

(1) Using paralinguistic cues such as emoticons appropriately. CMC communicators should use paralinguistic cues such as emoticons appropriately to express their attitudes toward the topic being communicated. According to Reid (1995), one of the major paralinguistic cues is emoticons, or smileys, which are pictographs composed of keyboard symbols. Some are extremely simple and others are highly complex. Usually, a communicator's appropriate use of emoticons can give receivers a positive impression of a more vivid, dynamic, and graphic description of their feelings and actions than of a traditional textual description. This may have important implications for interpersonal, organizational, and educational communications.

(2) Taking into account chronemics. CMC communicators should take into account chronemics since it is a very important nonverbal cue in CMC environments. Chronemics may have important implications for CMC communications between different locations and/or different time zones. This may avoid misattribution, misunderstanding, and frustrations. For instance, emotion-oriented messages are recommended to be sent at night, while task-oriented messages in the day.

(3) Maintaining a high frequency of messaging. CMC communicators should maintain a high frequency of messaging to express their attitudes toward the topic being communicated. This is helpful to achieve leadership in group interaction. This may have important implications for organizational and educational communications in CMC

environments. For instance, managers may maintain a high frequency of messaging to lead the discussion.

(4) Maintaining a long duration of messaging. CMC communicators should maintain a long duration of messaging to express their attitudes toward the topic being communicated. This is helpful to achieve leadership in group interaction. Duration of messaging may have important implications for interpersonal, organizational, and educational communications in CMC environments. For instance, managers may maintain a long duration of messaging to lead the discussion.

(5) Manipulating primacy effect. According to Rintel and Pittam (1997), CMC synchronous communicators should do the following in the opening stage: (a) select an appropriate nick name for initial impression formation, (b) occasionally broadcast appropriate statements to gain impression through the use of orthographic exaggeration, (c) say "hello" to every member in the communication group, (d) transmit a series of increasing negative utterances, (e) use smileys, and (f) develop a distinct writing style, including abbreviated forms and examples.

(6) Manipulating recency effect. According to Rintel and Pittam (1997), CMC synchronous communicators should do the following in the closing stage: (a) simply exit CMC interaction completely, (b) use a series of minimal closing token transmissions, and (c) finish a prolonged closing stage similar to that of any FtF interactions.

(7) Ensuring no typing errors. Although paralinguistic cues, such as emoticons or pictographs and typographic marks, are very helpful in facilitating emotional communication, CMC communicators have to ensure that there are no typing errors in the messages. Otherwise, the repetitive typing errors may convey the impression that the

communicator is careless and incompetent. This may have important implications for organizational and educational communications.

Conclusion

Impression formation is one of the major topics in cognitive social psychology. Since Asch's (1946) classical studies, there has accumulated considerable additional research in this area in FtF environments. One of the major shifts is that social cognition has contributed much to this area (Hampson, 1990; O'Keefe & Delia, 1982). Generally, impression formation refers to a receiver's judgments of a communicator's personality, such as competence, attractiveness, credibility, and the like. Impression formation involves two major processes. One is to make trait inferences from the communicator. The other is to apply recalled events to the judgments already made (Carlston, 1980).

Research has consistently indicated that both nonverbal and verbal cues influence people's impression formation in FtF. Reviewed nonverbal factors include three major categories: visible, paralinguistic, and psychological. Reviewed verbal cues include language norms, standard patterns, pragmatic and syntactic codes, language intensity, verbal immediacy, lexical diversity, powerful and powerless language styles, gender-related language, verbal influence strategies, and ironic remarks. In addition, the characteristics of the two theoretical models in CMC, the task-oriented model and the social-emotion-oriented model, are introduced briefly; then the relevant literature on verbal and nonverbal cues in CMC is reviewed.

In the final section, recommendations of a positive self-representation in CMC environments result from this review. The recommendations include (a) ten verbal strategies: following language norms, using standard patterns selectively, using pragmatic

and syntactic codes selectively, using intense language, using immediate language, using diverse language, using powerful language style, using appropriate gender-related language, selecting appropriately verbal influence language, and using appropriate ironic remarks and (b) seven nonverbal cues: using paralinguistic cues appropriately, taking into account chrenomics, maintaining a high frequency of messaging, maintaining a long duration of messaging, manipulating primacy effect, manipulating recency effect, and ensuring no typing errors.

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